Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

is, with cellulose walls, relatively scanty cytoplasm, and small, solitary nuclei. The pistillate flowers of the caprifig in which there has been neither egg-deposition nor fertilization usually do not develop farther and become atrophied. The author thinks the conclusion to be inevitable that the "stimulus" produced by the presence of the egg and larva of Blastophaga does just what is usually accomplished by fertilization, in determining not only the development of endosperm but also the further growth of the ovule and of the pericarp, and the general form of the fig.—J. M. C.

Spore formation in Derbesia.—DAVIS[22] has published a paper treating of spore formation in Derbesia, one of the Siphonales. He studied the development of sporangia and the formation and germination of zoospores. The most interesting points of the paper are the results concerning the behavior of nuclei in the sporangium previous to the formation of zoospores. Many nuclei which do not take part in the formation of zoospores undergo degeneration. Plastids become arranged radially about the nucleus which survives the act of degeneration. Including the nucleus as a center, segmentation of protoplasm takes place to form the beginning of the zoospore; then the formation of the blepharoplast begins. Previous to the formation of the blepharoplast, the nucleus moves from near the center of the young zoospore toward the periphery. Granules around the nucleus seem to move toward the periphery, where they fuse with one another to form a ring which becomes the blepharoplast. DAVIS believes that the belepharoplast of Derbesia is not a development from the plasma membrane, but from the granules closely associated with the protoplasm investing the nucleus. The paper closes with a discussion of the cytology of the blepharoplast and the value of zoospores and gametes as taxonomic characters in Siphonales.—SHIGÉO YAMANOUCHI.

Gummosis.—RUHLAND, who had been working with the late Dr. R. ADERHOLD in the Imperial Biological Station at Dahlem upon the problem of the formation of gum, has published a preliminary paper upon the physiology of gum formation,[23] promising the full account later, with developmental and anatomical details, in the *Arbeiten* of the station. A part of the paper is devoted to a criticism of the latest theory, that of BEIJERINCK and RANT,[24] who hold that cytolytic substances issuing from the dead cells in the neighborhood of a wound cause the liquefaction of embryonal wood tissues, anomalously developed through the wound stimulus. RUHLAND, however, holds that, whenever such tissues are produced by wounding, it is the influence of the oxygen of the admitted air that determines a cessation of further division in these cells, because of the transformation of certain carbohydrates, suitable for forming the partition walls, into gums rich in oxygen. Parasites and saprophytes affect the formation of gum only by creating or enlarging rifts or wounds, hindering their recovering and recovery, and so making possible the access of oxygen. Experimental proofs are adduced for this view, whose probability is increased by many chemical considerations.—C. R. B.

---

[22] DAVIS, B. M., Spore formation in Derbesia. Annals of Botany **22**:1–20. *pls. 1, 2.* 1908.

[23] RUHLAND, W., Zur Physiologie der Gummibildung bei den Amygdaleen. Ber. Deutsch. Bot. Gessells. **25**:302–315. *figs. 3.* 1907.

[24] Wundreiz, Parasitismus, und Gummifluss bei den Amygdaleen. Centralbl. Bakt. II. **15**:366 ff.

Fixation of free nitrogen.—Dr. CHARLOTTE TERNETZ, baffled in an attempt to identify the pycnidial fungi which belong to the endotrophic mycorhiza of the Ericaceae, turned to a study of the ability of these fungi to fix free nitrogen when grown in N-free cultures.[25] The fungi doubtless belonged to the genus Phoma, and five species are described, derived from the roots of as many genera. These all fix atmospheric nitrogen, though in very different amounts. The three from Vaccinium, Oxycoccus, and Andromeda, while they work far less energetically in this respect than most N-fixing bacteria, nevertheless gain the largest amount of nitrogen of any known organisms in comparison with the amount of carbohydrate consumed. *Aspergillus niger* and *Penicillium glaucum* likewise are capable of fixing free N in small amounts, comparable with those yielded by the other two Phomas from the roots of Tetralix and Erica.

It may be that this action, relatively small when the fungi are grown in culture media, is much more pronounced when the mycelium grows in the cortex, and that we have here proof of the advantages which the Ericaceae derive from this association. The author's cultures show that the infection may be transmitted through the seeds and does not come necessarily from the soil.—C. R. B.

Development of leaves.—LEWIS[26] has published a second study of leaf development, in which he shows "that the basipetal and basifugal directions of growth may both occur in a single leaf; and that, although one becomes predominant, evidences of the other are apparent." In a previous paper[27] he discussed the question whether certain forms of adult leaves could be due to arrested development, "so that by comparing the mature leaves of a given plant something of their embryological history could be learned." The general conclusion is that leaves of very diverse species show a common method of leaf development, in which the basipetal and basifugal directions of growth are combined; and by the predominance of the basipetal or the basifugal elements, palmate or pinnate leaves are produced respectively. The author thinks that there is shown a determinate evolution of leaf forms, whereby diverse species tend to produce similar shapes. Plants with simple leaves constantly show tendencies toward compounding. "The persistent production of the similar forms of compound leaves which have been described is evidence in favor of determinate or orthogenetic evolution."—J. M. C.

---

[25] TERNETZ, CHARLOTTE, Ueber die Assimilation des atmosphärischen Stickstoffes durch Pilze. Jahrb. Wiss. Bot. **44**:353–408. 1907.

[26] LEWIS, FREDERIC T., A further study of leaf development. Amer. Nat. **41**: 701–709. 1907.

[27] Amer. Nat. **41**:431–441. 1907.